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STATE BOARD OF HEALTH.

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VITAL STATISTICS FOR DECEMBER.

Summary.—For December there were reported 1,694 living births; 2,683 deaths, exclusive of stillbirths; and 1,997 marriages. For an estimated State population of 1,882,846 in 1906, the December returns give the following annual rates: Births, 10.8; deaths, 17.1; and marriages, 12.7, per 1,000 inhabitants.

Tuberculosis and pneumonia were the leading causes of death in the month, with heart disease next in order. Typhoid fever, as usual, was the most fatal epidemic disease in the State, though the proportion of all deaths due to this disease was less for December than for November and October.

Causes of Death.—The following table gives the number of deaths due to certain principal causes in December, as well as the proportion from each cause per 1,000 total deaths for both December and November:

Cause of Death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES.....	2,683	1,000.0	1,000.0
Typhoid fever.....	95	35.4	44.5
Malarial fever.....	5	1.9	4.6
Smallpox.....	1	0.4	-----
Measles.....	12	4.5	4.6
Scarlet fever.....	5	1.9	0.4
Whooping-cough.....	11	4.1	1.9
Diphtheria and croup.....	35	13.0	13.2
Influenza.....	4	1.5	1.9
Other epidemic diseases.....	11	4.1	3.5
Tuberculosis of lungs.....	358	133.4	113.4
Tuberculosis of other organs.....	51	19.0	19.0
Cancer.....	127	47.3	49.9
Other general diseases.....	92	34.3	35.6
Meningitis.....	50	18.6	13.2
Other diseases of nervous system.....	197	73.4	84.3
Diseases of circulatory system.....	362	134.9	137.3
Pneumonia and broncho-pneumonia.....	315	117.4	96.3
Other diseases of respiratory system.....	94	35.0	27.1
Diarrhea and enteritis, under 2 years.....	57	21.3	34.8
Diarrhea and enteritis, 2 years and over.....	19	7.1	9.7
Other diseases of digestive system.....	118	44.0	40.6
Bright's disease and nephritis.....	156	58.1	52.6
Childbirth.....	22	8.2	9.7
Early infancy.....	67	25.0	36.0
Suicide.....	45	16.8	11.6
Other violence.....	196	73.1	78.5
All other causes.....	178	66.3	75.8

There were 409 deaths, or 15.2 per cent of all reported for the month, from tuberculosis of the lungs and other organs, and the same number from pneumonia and other diseases of the respiratory system. The proportions for tuberculosis and pneumonia were higher for December than for November. Next in order are diseases of the circulatory system, heart disease, etc., causing 362 deaths, or 13.5 per cent.

Typhoid fever caused 95 deaths, or only 3.5 per cent of the total for December, against 4.5 per cent for November, and 4.4 per cent for October. For December there were also reported 35 deaths from diphtheria and croup, 12 from measles, 11 from whooping-cough, 5 each from malarial fever and scarlet fever, and 16 from various other epidemic diseases.

REPORTING TUBERCULOSIS.

Tuberculosis caused the death of 4,183 persons, or 15.5 per cent of all the deaths in the State during the twelve months from July 1, 1905, to July 1, 1906. To be sure, many of them contracted the disease elsewhere, and came here to die—an act they could have performed with equal credit and more comfort at home—but over 28 per cent were natives of the State and as many more had lived here over ten years, so had in all probability contracted the disease here. Many who had lived here less than ten years came in perfect health, and it is safe to say that 65 per cent of all those dying from tuberculosis in California contracted that dread disease in the State. One thousand five hundred in round numbers came here to get the advantages of our climate, the best climate no doubt out of doors, but when confined within four tight walls and filled with the products of gas or coal-oil combustion and the emanations of diseased bodies, no better than what they left. In this

good climate, 2,500—think of the number—died in one year from tuberculosis contracted in the State.

There is no doubt many of these contracted the disease from cases coming here without the means for proper care. These infected strangers, living in dark and ill-ventilated rooms, eating at cheap restaurants and expectorating everywhere, will infect more natives than ten times the number who reside in good homes where care is exercised. It is not the number of sick coming to us that is of the most importance, but how and where they live after getting here.

If we are to do anything to stop this terrible mortality we must know where to work, and this can be done only by having cases reported.

The following is of interest as pertaining to this question:

Compulsory Registration and Fumigation in Pulmonary Tuberculosis, the Two most Important of all Preventive Measures.

By GEORGE H. KRESS, M.D., Los Angeles, Cal.

Visiting Physician to the Barlow Sanatorium for Poor Consumptives of Los Angeles; Attending Physician to Helping Station of the Southern California Anti-Tuberculosis League.

Compulsory registration and fumigation, when applied to pulmonary or lung tuberculosis (a disease also widely known by the name of consumption or the great white plague), have reference to the compulsory notification of the city, county, or state health officers, by the attending physicians, of the name and residence of every patient suffering from this widespread disease which comes into the hands of those physicians for treatment, to the end that, on the one hand, the infection of healthy citizens might be prevented, and that, on the other, the patient might be protected from re-infecting himself.

In the system of compulsory registration and fumigation of pulmonary tuberculosis no placard or sign is placed on the house, as is the case in diphtheria or scarlet fever. In these latter diseases the chances of infection by simple contact are much greater than in tuberculosis, tuberculosis being a disease that requires for infection, as a rule, very close and somewhat prolonged contact with an infected person, room, furnishings or clothing, the danger in this chronic disease lying more in the fact that the millions and billions of germs which each consumptive expectorates in a short time so infect the room or furnishings that it is almost impossible for subsequent occupants not to inspire dose after dose of the germs, and if such persons be below par physically the chances of their becoming infected with tuberculosis are very great.

Coming back to the system of compulsory registration, if our lay citizens could only understand that the system of compulsory registration of tuberculous patients (life-saving measures of a scope so great that only those who have studied the tuberculosis problem are in a position to appreciate their value) means not the least hardship, embarrassment, or inconvenience to family or patients; and further, that it means not the smallest iota of publicity, and that, so far as the outer world and neighbors are concerned, the patient stands in the same relation as to-day, except that the opportunity or privilege of infecting his relatives, friends, and fellows, and of re-infecting himself, is denied him, there would be none of this opposition to one of the most beneficent measures in the prevention of the world's great scourge, which we some-

times see manifest itself when this system of compulsory registration and fumigation is advocated.

In speaking of the deaths from pulmonary tuberculosis, due to criminal negligence of proper regulations on our part, we have been tempted to characterize them as murders, for, in the ethical sense, is it not murder when human life is taken by means that we know could easily be prevented? Is it ethically any less a crime to infect an individual and cause his death by slow degrees from disease, and perhaps have him in time infect and cause the death of others near and dear to him (setting in motion an almost endless chain), than to kill him outright with bullet, knife, or other weapon, recognized as such in law? Is a human life not always a human life, and if it be sacred and worthy of protection from one class of weapon and preventable death, should it not also be sacred from all other types of weapon and preventable death?

And the germ or bacillus of tuberculosis is nothing else than a weapon of death, a weapon of death in such constant use that it undoubtedly causes many times more mortality (one out of every ten persons dies of the disease) and certainly a vast deal more of mental pain and physical suffering than all the murderers in the usual sense, on whom the law seeks to expiate such crimes.

It is a fundamental obligation on the part of a State to take steps to protect its citizens from preventable death. If the sputum containing millions and billions of germs of tuberculosis which is spread broadcast in California by our fellow citizens from the East, who come here in search of health—if this germ-containing sputum could be rendered innocuous before it has an opportunity to infect healthy citizens, hundreds of lives would be saved to this commonwealth. The Golden State, because of its climate, draws consumptives to its confines by the hundreds. These consumptives infect rooms and bed clothing and make these places dangerous to subsequent occupants. The poorer the consumptive (almost fifty per cent of our consumptives who come hither from the East are virtually penniless), the meaner and more crowded his boarding-house, and the greater the chance of having his sputum be the cause of infecting his fellows.

When we know that the periodical fumigation of rooms which have harbored consumptives would prevent the larger proportion of these deaths and misery, and when these measures can be instituted without the least hardship or embarrassment to anybody, is it not almost a crime to refrain from bringing such measures into existence?

What, now, do the terms compulsory registration and fumigation comprehend? In a few words, they are methods intended to destroy the bacillus of tuberculosis, *i. e.*, the germ, without the presence of which in his body no person can have tuberculosis, and in destroying these dangerous germs the lives of many citizens would be saved.

If infection can not take place without the germ, then if you kill all the germs there can be none, or at least only a minimum amount of tuberculosis. Now that is what compulsory registration and fumigation aim to do.

The system known by that name aims to give to our health officers the name and residence of every consumptive, so that every such person may be instructed to destroy his sputum (for it is in the sputum or expectoration that the germ reaches the outer world), and it is to be remembered that the twenty-four-hour sputum of a single consumptive

may contain not only millions, but possibly several billions of the germs.

When such a consumptive person changes his residence or dies, the room is fumigated, so that its next occupant is in no danger of infection from tuberculosis. Hotels, cheap lodging-houses, and second-hand establishments should also be periodically fumigated.

All this is done without publicity, no placard ever being placed on the house, and none but the county or city health officers and their delegated deputies knowing the names of the persons reported as having the disease. If the attending physician certifies that the patient is observing all proper hygienic requirements and is carefully destroying his sputum, and will vouch for the proper fumigation of the rooms according to health office requirements, the health office will never trouble the patient or his family or the owner of the property.

When an ignorant or vicious patient disregards all hygienic requirements, and refuses or is unable to appreciate the importance of destruction of sputum, then if a deputy or nurse from the health department, sent at the request of the attending physician, is unable to make such a criminally ignorant or vicious consumptive do these things, the health officer should then have the power to order such a person sent to a hospital where he can not endanger the lives of others.

Are these measures mere theories? No, for by means of them, in connection with new tenement house laws, the city of New York in less than twenty years was able to reduce its mortality rate from tuberculosis by more than forty per cent and Berlin and other continental cities, as well as a half hundred cities in our own land, have followed the lead of New York and likewise have inaugurated these measures.

Owing to the influx of Eastern consumptives into not only our large cities, but the smaller towns and country districts of California, there is an especial need of a State law making the registration of all persons suffering from tuberculosis, and the periodical fumigation of rooms, compulsory.

In brief, these measures are logically indicated because of the following facts:

(1) Tuberculosis or consumption can not exist without the presence of its special germ.

(2) For all practical purposes, the germ that is present in an infected person has come from the dried sputum of some previously infected person.

(3) Therefore, if you can destroy all the sputum, you can kill all the germs and you have no newly infected persons.

(4) To destroy the sputum containing these germs you must first know where the persons live who produce this kind of sputum.

(5) Therefore, it becomes necessary for physicians to report to the city, county, or state health officers the names and residences of all tuberculous patients.

(6) Steps are then taken by physicians and health officers (with the greatest possible privacy) to instruct the patient how to destroy his sputum.

(7) And when the patient changes his residence or dies the rooms in which he lived are fumigated (without publicity), so that subsequent occupants are in no danger from infection.

(8) Provision is also made that consumptives living in unhygienic surroundings be instructed as to destruction of sputum, and when they

ignorantly or viciously refuse to do this, that the health officer have the power to have them removed to a hospital, where their carelessness would be so safeguarded as to prevent them from being a menace to the lives of others.

(9) In conclusion, the measures are humane, considerate, and logical attempts to destroy the germ that causes the disease, so that lives that are now needlessly sacrificed by hundreds and thousands may be saved.

(10) For be it remembered that infection in many, many cases means death, and death from preventable sources takes on a criminal phase—aye, in some cases, if not legally, then ethically, becomes related to murder.

THE STATE HYGIENIC LABORATORY AND DIPHTHERIA IN BERKELEY.

The existence of an epidemic of diphtheria in Berkeley has offered an opportunity for coöperation between the State Hygienic Laboratory and the local health authorities in combating diphtheria. The work is far from ended, but its progress is shown in the following letter sent to the physicians of Berkeley:

Dr. ———:

DEAR DOCTOR: The unusual prevalence of diphtheria in Berkeley during the past four months has called for the most energetic measures for its suppression. Most of the cases have occurred in the Lincoln School in South Berkeley. Rather than close the school, we have tried the method which was so successfully used by the Minnesota State Board of Health for exterminating diphtheria epidemics.

On December 19, 1906, a culture was taken from the throat of every child then in attendance at the school, in all about five hundred. On examining these cultures we found diphtheria bacilli to be present in twenty-five cases, or 5 per cent of the children in the school. Subsequent examinations, of children returning to school after short absences, revealed twenty more, making a total of forty-five. Of these, nine were traceable to previously reported cases of diphtheria. In these cases the children had either been sick themselves and sent back to the school before the germs were gone from their throats, or they were in the family of convalescent cases of diphtheria. Five more of them had, at the time, mild symptoms of diphtheria, so mild that it had not been recognized by the parents that the child was really sick, or that it was anything serious. In two cases, a history of a previous very mild, unrecognized, or at least unreported diphtheria could be traced. The rest were "germ cases," in which the germs were present in the throats, but there were no clinical manifestations, and no history of previous symptoms. The work of the Massachusetts Association of Boards of Health has shown that these "germ cases" are very common among persons exposed to diphtheria (6 per cent to 50 per cent) and that while all of them are not necessarily dangerous, in at least 17 per cent of them the germs are virulent and may cause trouble later in that individual or on transmission into another. All of the children who had germs in their throats were excluded from the school, and were not allowed to return until two successive cultures, at an interval of at least one week, had shown the germs to be absent from the throat.

This procedure will be repeated at intervals until the diphtheria is stamped out of the school. In each case in which germs are present we will advise that a physician be consulted. Experience has shown that where the throat and nose are irrigated and the throat swabbed thoroughly with a warm, mild alkaline solution the mucous membranes are freed from the germs in a very short time. The bacteria usually persist for about four weeks after the disappearance of the clinical symptoms.

Our work has shown that most of the trouble in the Lincoln School is arising from cases so mild that they are not recognized as diphtheria. You will aid us very much in our endeavors to stop the epidemic, if you will submit to us a culture from every sore throat that comes under your observation, however far it may seem from diphtheria. The outfits for making these cultures can be obtained from the health office, corner of Shattuck avenue and Alston way, or from the State Hygienic Laboratory at the University of California, or from Burton & Rathke, 3276 Adeline street. They may be returned by mail or messenger.

After a case of diphtheria has recovered, when you consider the patient ready for release from quarantine, you are requested to take another culture, and send it to the laboratory. Since one culture, owing to the use of antiseptics, may give erroneous results, we will later send our representative for a second culture. Quarantine will be removed only when two successive cultures, at a sufficient interval, have demonstrated the absence of the germs.

We will greatly appreciate any assistance that you will give in this matter, by the liberal use of cultures, in determining the true nature of obscure cases, and by the prompt reporting of any case that is undoubtedly diphtheria.

Yours sincerely,

G. F. REINHARDT, Health Officer.

The work done so far has led to the conclusion that mere exclusion from school without quarantine does not insure the necessary isolation of the germ cases. Consequently, the following letter will be sent to the parents of children harboring diphtheria bacilli:

Mrs. ———,

DEAR MADAM: An examination has been made of the throat of ———, and it has been found that there are diphtheria germs present. This does not necessarily mean that — he will have diphtheria, but it does mean that — he has been exposed to the disease and may give it to other children. Although the germs may never show in the throat except by bacteriological examination, yet — he is a menace to other children.

Your children are therefore quarantined. This means that they are not to be allowed to leave, nor are other children to enter, the premises while this quarantine lasts. The quarantine will be maintained until the throats of your children are free from the germs. They will be visited from time to time at your home to determine when this is the case, and notice will be sent you when the quarantine may be removed. Its duration will undoubtedly be shortened if you will consult a physician and have proper treatment.

Diphtheria is spread by children using in common such things as cups, spoons, pencils, and the like; sucking the same toys; coughing in each other's faces; kissing; or by any of the various ways in which the germs in the throat and saliva may be transferred.

Very truly,

G. R. REINHARDT,
Health Officer.

It is quite too early in the work to speak of results, but certain lessons may be drawn.

The termination of quarantine in diphtheria ought always to be made dependent upon a bacteriological examination. The widespread existence of diphtheria in the form of a mild inflammation without the presence of a membrane is not recognized by the average physician in his practice. A bacteriological examination alone can make it sure. During a diphtheria epidemic any sore throat in child or adult should justify making such an examination.

The fact that the laboratory is conveniently near to the epidemic has greatly facilitated the work; still there is no reason why the laboratory should not do similar work for other towns. Cultures should be taken by local health authorities and sent in by express with only a slight loss of time. In Minnesota, where the laboratory staff is adequate, a representative of the laboratory goes to the epidemic equipped to do the work. This can not be done here at present, but the laboratory is open for the use of all health officers, and if they will avail themselves of it they will be able to take a positive stand early where otherwise they would be in doubt.

PURE FOOD.

The National Pure Food Law, which went into effect January 1, 1907, has only a limited power to prevent the use of impure and adulterated food in this or any other state, as it simply prohibits the importation of impure food into the State. All that was here at the time the law took effect and all that can be manufactured within the State is not reached by that law. Consumers must not think that because of this law they will not be served with adulterated foods and drugs, for they will be, and possibly for a time to a greater extent, unless they watch out for themselves.

Foods brought in now must come up to the standard of purity, but that already here or manufactured within the State may be grossly adulterated. The only way to meet this is by a California Pure Food and Drug Law. It is encouraging to see that the Legislature which is now in session has taken the matter up seriously, and has before it a most excellent Pure Food and Drug bill. This bill is directly in accord

with the national law, using the same definitions and having practically the same requirements.

As the Governor has always stood for pure food there are high hopes that we will soon, in a great degree, be relieved of that disgrace to our civilization, impure food. The slow poisoning by foods preserved with dangerous chemicals, together with the impure and adulterated stuff that is often sold, is responsible for innumerable deaths.

We can not, as a State, afford for any consideration to become the dumping-ground for other states, nor allow our manufacturers to serve the people with anything but what is pure. Not only the health and life of our children are at stake, but our reputation as a State. Let it once be known that California products are pure and wholesome, and exactly what they are represented to be, and an impetus will be given to trade that will far more than offset any damage that can be done.

TYPHOID FEVER.

There has been a material falling off in the number of deaths from typhoid fever during the past month, and also in the number of cases reported. This is due in the cities to the general cleaning up and in the suppression of flies, and in the country to the rainfall which has cleaned out the streams and reservoirs, and diluted the water, which, in many places, is polluted, thus lessening the chances of infection.

Typhoid fever should be a rare disease, instead of standing sixth or seventh in the list of causes. It is a filth disease, the germs being carried only in the discharges from the body, and we have simply to destroy them. This is impossible in all cases, for they linger long after the patient is out from under the care of the doctor; but much can be done in that way. Flies, water, and personal contact are the chief means of distribution, and these can be largely controlled.

"The Life of Germs in Water.—It is well-known that water is a carrier of infection, and indeed that pure spring water may carry organisms of disease. The question as to how long the organisms of disease may live and retain their virulence has been the subject of considerable controversy. The general tendencies of opinions hitherto made have been that though they may live for a time in clean water, they will multiply little, if at all, and tend to die out rapidly. The short life of disease-producing bacteria in water is supposed to be due to unfavorable environments, such as the competition of hardier water-bacteria and the absence of proper nutriment. Recently these conclusions have been challenged. It is stated that water is an excellent medium for many pathogenic micro-organisms, and that in the long run they survive the supposedly more hardy water-bacteria. It has also been stated that disease organisms live longer in pure than in dirty water; therefore, pure drinking water, once infected, is more dangerous than foul water. Some experimenters have demonstrated that typhoid bacillus would live in ordinary drinking water for over a year. Sterilized water has been demonstrated to be a good culture medium for the anthrax bacillus, as well as for the typhoid bacillus. The practical significance of these demonstrations is that a community which has suffered from an epidemic of typhoid fever, due to infection of the water supply, can not rely upon the short life of bacteria to free it from danger, and these experiments may also explain recurrences of epidemics of typhoid fever after supposedly sanitary reforms of water supplies."—*Exchange*.